MSAPC ADVISORY CIRCULAR

U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF AIR AND WASTE MANAGEMENT ● MOBILE SOURCE AIR POLLUTION CONTROL

SUBJECT: Operation of Certification Vehicles on the EPA Fuel Economy Highway Driving Cycle

A. Purpose

The purpose of this Advisory Circular is to authorize manufacturers to operate certification vehicles on the EPA highway driving cycle for the purpose of determining fuel economy. This Advisory Circular replaces Advisory Circular No. 42 which is obsolete and should be discarded.

B. Background

1. EPA plans to test 1976 model year emission data and running change vehicles on the highway driving cycle to determine their fuel economy under these driving conditions, in addition to obtaining fuel economy results for these vehicles measured during the Federal Test Procedure (FTP). Subject to the publication cut-off dates specified in Attachment A of Advisory Circular No. 49, the resulting data will be used in the development of the 1976 edition of the Gas Mileage Guide for New Car Buyers. After these dates the fuel economy data for emission data running change vehicles will be relevant for carry-over purposes in subsequent models years, and will generally be useful for the purpose of analyzing fuel economy impacts and trends.

2. 40 CFR 85.075-7* prohibits emission testing of any type with respect to any certification vehicle other than testing specified in Subpart A of Part 85, except such testing as may be specifically authorized by the Administrator.

3. Realizing that manufacturers will desire to operate certification vehicles over the highway driving cycle in their own facilities for purposes of determining fuel economy, EPA has decided to give blanket approval to conduct as many as two valid tests per emission data or running change vehicle provided that all the data are submitted to EPA.

4. Advisory Circular No. 42 authorized manufacturers to operate certification vehicles on the EPA highway driving cycle for the purpose of determining fuel economy. The circular also provided a procedure for resolving differences between fuel economy results of manufacturers' tests and tests conducted at EPA. After the publication of the Advisory Circular, the procedures for determining acceptability were modified to ensure more accurate fuel economy

*References to sections contained in Subpart A (e.g., 40 CFR 85.075-7) also apply to the corresponding sections of Subpart B (i.e., 40 CFR 85.175-7), Subpart C (i.e., 40 CFR 85.275-7), and Subpart D (i.e., 40 CFR 85.376-7)

results. These changes rendered Advisory Circular No. 42 obsolete. These revised procedures were made available to manufacturers and other interested parties, and have subsequently been published as an addendum to Attachment A of Advisory Circular No. 49.

C. Applicability

This circular is applicable to 1976 and subsequent model year gasoline fueled light duty vehicles and light duty trucks and Diesel light duty vehicles and light duty trucks.

D. Procedure

EPA hereby authorizes manufacturers to operate emission data and running change vehicles over the EPA highway dynamometer driving cycle, measure HC, CO, NOx and CO_2 exhaust emissions (bag analysis only, i.e., no continuous sampling) and to calculate the carbon balance fuel economy obtained on the highway cycle, provided that:

1. The testing is conducted after the manufacturer's 4,000 mile emission test.

2. No more than two valid tests are conducted per vehicle (the validity of the highway fuel economy test will be determined by the manufacturer according to practices consistent with the procedures in Subpart A of Part 85. For example, a test would be voided if the speed tolerance specified in §85.075-14(b) were exceeded). If the highway fuel economy test is declared invalid, the test will be repeated, and

3. The emission and fuel economy data for all such tests are submitted to EPA at the time the vehicles are delivered to EPA for confirmatory testing. Highway fuel economy results should be submitted as indicated on the attached Vehicle Log Sheet and Vehicle Data Sheet, pages 69 and 70 respectively in the Application Format for Certification of Light Duty Motor Vehicles - 1976 Model Year Recommended Procedures.

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for Mobile Source Air Pollution Control

Attachments

Manufacturer _____

VEHICLE DATA SHEET (to be supplied when car is delivered to EPA for test)

1. Vehicle Specifications:

Engine Family_____ Vehicle Serial No._____

Vehicle I.D. No. (if used)_____ Model_____

Engine Code and Serial No._____ Displacement_____

No. Cylinders_____ Compression Ratio_____ Advertised HP_____

Bore_____ Stroke_____ Transmission_____ Axle Ratio_____

N/V_____ Tire Size_____ Curb Weight_____ Air Conditioning_____

Carburetor Make_____ No. of Venturis_____ Curve No._____

Distributor Make_____ Curve No._____ EGR Curve No.*_____

Exhaust Control System**_____

Evaporative Control System_____ Crankcase Control System_____

Devices and Calibration Values_____

_____

2. Engine Tune-Up Specifications:

Basic Ignition Timing_____ Degrees_____ TDC at_____ RPM

Setting Procedure_____

Idle Speed_____ RPM in_____ Dwell_____ Idle CO_____ %

Setting Procedure_____

Spark Plug Type_____ Spark Plug Gap (in.)_____

3. Test Conditions:

Dynamometer Inertia_____ Actual Road Load Power_____ at 50 MPH

Nominal Fuel Tank Volume (gal)_____ Shift Points_____

Starting Procedure***_____

Describe Alternate Procedures (cooling fan, etc.)_____

4. Trap Locations for Evaporative Loss Test:

Air Cleaner_____ Canister_____ Relief Valve_____

Carb. Bowl Vent_____ Filler Cap_____ Other_____

5. Manufacturer's Emission Results:

Location of Test_____ Date of Mfr's Test_____

HC-Gm/mile_____ CO-Gm/mile_____

NOx-Gm/mile (corrected)_____ Evap-Gm/Test_____

CO_2-Gm/mile_____ FTP Fuel Economy*_____

Highway Fuel Economy*_____

* If applicable

** Indicate catalyst code if applicable.

*** As outlined in the vehicle Owner's Manual.

EPA I.D. No._____

VEHICLE LOG SHEET * Vehicle I.D. No. (if used) 385C-1

Engine Family 385C Displacement 385 Model SPORT Vehicle Serial No. 31756G

Transmission AUTO-3 Engine Code #3 Exhaust Control System** AIR-EGR-OC.

Evaporative Control System CANISTER Crankcase Control System CLOSED

Date	Test No.	Odom. Miles	System Miles***	Actual Idle Speed	Actual Ignition Timing	Actual Dwell	Ambient Temp. (°F)	Emission Results HC	CO	NOx	CO2	Evap.	Event Description	Fuel Econ.
1/74	100	4	0	850	10°B	32°	79°	.5	11.0	2.0	600	.5	ZERO MILE TEST	14.4
0/74	115	4004	4000	825	9°B	31°	80°	.4	10.0	1.7	580	.7	4000 MILE TEST	14.8
1/74	117	4054	4050	830	10°B	32°	82°	.05	1.0	1.2	730	~	HIGHWAY FUEL ECONOMY TEST	22.2
3/74	19-756	4074	4070	840	10°B	32°	80°	.45	10.0	1.7	590	.8	EPA - OFFICIAL 4000 MILE TEST	14.5
3/74	19-757	4174	4120	850	10°B	31°	82°	.04	1.1	1.3	735	~	EPA - HIGHWAY FUEL ECONOMY TEST	22.0

* Indicate all emission measurements performed on a vehicle, including EPA tests. Also indicate whether tests are before or after tune-up, scheduled maintenance, unscheduled maintenance, giving brief description of maintenance and additional information requested by EPA (engineering report, data, etc.). Include partial, void, and other tests.

** Indicate catalyst code, if applicable.

*** Specify correction, i.e., System Miles=CFxOdom. Miles + IC where CF= Correction factor and IC=initial correction.